

**STUDIES ON THE PLECOPTERA OF NORTH
AMERICA: VI. FURTHER NOTES ON
ISOGENOIDES.**

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The publication of this article has been made necessary by a series of peculiar circumstances. At the time of appearance of Dr. Frison's designation of the new species *Isogenoides dorata* (1942) another paper (Hanson, 1943) describing the same species was in press. The latter paper was therefore recalled and modified in order to avoid a synonymy under *I. dorata* Frison. While studying for a short period at the Illinois Natural History Museum in 1946 I discovered that this action created rather than avoided synonymy because Frison's very excellent description, supposedly of *I. dorata*, does not apply to the holotype specimen of the species (i.e., two species were included in the type series of *I. dorata*). Therefore, *I. dorata*, though named, has remained undescribed, except in the immature stage, until recently. And the adult specimens described under *I. dorata* have been unnamed.

For several years I have had a nearly completed manuscript concerning this confusing situation buried on my desk. The original intention was to name the new species after Dr. Frison whose death brought to an untimely close a very active and extremely valuable entomological career. Ricker, however, has recently (1952) named the species *hansonii*! (He was unaware of my studies of the same problem.) My original notes on both species concerned, with only slight modifications necessitated by Ricker's 1952 publication, are included below. This action seemed advisable since Ricker's description and drawings of the previously undescribed *Isogenoides dorata* Frison are hardly adequate for identification of the species.

Isogenoides dorata (Frison)
(Figs. 1-6)

1942. *Hydroperla dorata* Frison, ♂♀ and naiad, Bul. Ill. Nat. Hist. Survey 22(2): 295-296, fig. 67 (in part; naiad descr. and fig., ♂ holo- and ♂ paratopotype specimens apply to this species).

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1952. *Isogenus (Isogenoides) doratus*, Ricker, ♂♀, Ind. Univ. Publ. Sci. Ser. 18: 108-109, figs. 56-59.

As mentioned in the introduction, through a confusion in original type designation and because of certain discrepancies in Ricker's recent description further comment on this species seems in order. Ricker gave no written description of the species at all and his drawings are either very inaccurate or were made from some species other than *I. dorata*. On the same plate he shows two supraanal process drawings which are different from each other and quite different from the holotype and paratype of *I. dorata*. His ventral view of the male abdomen shows a finger-nail-like process on the fifth, sixth, and seventh sternites. The male types of *I. dorata* show such a process on the seventh sternite only. In recently collected and well preserved specimens there may possibly be a colorational indication of a "nail" on the sixth sternite, but the number of "nails" shown by Ricker are, if they exist, unique for the genus.

The following description and figures are based on the paratype which was carefully compared with the holotype by the author while in Illinois in 1946. The reasons for placing *dorata* in *Isogenoides* rather than in *Hydroperla* are the same as those discussed for *hansonii* (then called *dorata*) by the author in 1943.

Coloration and structural details of *I. dorata* are typical of *Isogenoides* (see Hanson, 1943). *I. dorata* differs from other species of *Isogenoides* particularly in characters of the supraanal process, lateral stylets, and genital lobes. It appears also to differ from most species of *Isogenoides* in the possession of a distinct "nail" on the seventh abdominal sternite. Usually however, for taxonomic purposes in *Isogenoides*, the presence or absence of a "nail" is of very dubious diagnostic value since in some species it is mostly or completely colorational rather than structural in definition. Detection of the "nail" therefore, depends largely on the state of preservation of colors in the specimens being studied. A very careful study has revealed its presence in some species of *Isogenoides* in which it had not previously been reported (including *I. zionensis*, in which this writer has previously definitely reported its absence). Obviously then, fresh specimens of each species, unbleached by alcohol, must be studied before the absence of this structure can be established for doubtful species.

The species of *Isogenoides* are so closely related one to another that it is difficult to decide on the affinities of *I. dorata*. Its closest relative is perhaps *I. elongatus*. The two species are very similar in shape of genital lobes, general plan of supraanal process, and

even as to position and extent of the membranous area of the subanal lobes. *I. dorata* differs from *I. elongatus* in several details including the more nearly cylindrical shape of its stylets, the markedly less conspicuous size of the subapical spurs on its supraanal process, the greater length of the spine-like setae of the genital lobes, and in numerous details of the aedeagus. (Aedeagal structures of this and related species will be treated in a later paper.)

Male:—length of body, 15 mm.; wings, 13 mm., extending beyond the tip of abdomen.

Dorsolateral humps on abdominal segments six and seven present but rather small and inconspicuous. A conspicuous "nail" present on the seventh sternite; a slight colorational indication of one present on segment six. Ninth abdominal sternite normally (i.e. slightly) produced backward. Genital lobes (10th abdominal segment) large, broadly rounded at apex, and with a patch of about ten relatively elongate (unequalled in length except in *I. hansonii*) spine-like setae in an anterior subapical position. Supraanal process elongate, slightly curved forward; with a tiny, blunt, posteriorly recurved, apical process. Supraanal process membranous except for anterior and posterior sclerotized supports and a small lightly sclerotized cap on the apical hook. Posterior sclerotized support long and almost parallel-sided except near tip which is pointed; not extending quite to apex of supraanal process. Anterior sclerotized support branched near its base into three arms which extend about two-thirds of the distance from base to apex of the supraanal process. The outer two of the three arms broaden toward their apices which are hooked; the median arm narrows toward its pointed apex and is shorter than the other two. Membranous parts of supraanal process, especially toward apex, covered with innumerable tiny granulations; bearing a pair of barely detectable subapical posterior projections. Lateral stylets attached to base of supraanal process by means of a long strap-like region which is imbedded in membrane; with free apical region of stylets slightly over 0.1 mm. in length, slightly curved, nearly cylindrical, apex blunt, lower surface granulate. Paragenital plates convex, well sclerotized except at tip; similar to those of other species of *Isozenoides*. Subanal lobes moderately large; with a large membranous area covering their central and apical regions.

Female:—length of body, 18 mm.; wings, 15 mm., extending beyond tip of abdomen.

Subgenital plate extending slightly more than half way across segment nine; with posterior margin convex.

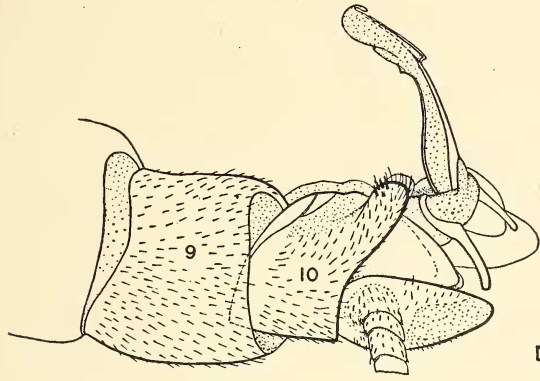


FIG. 1 TERMINALIA, ♂

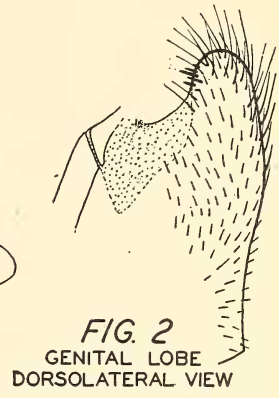
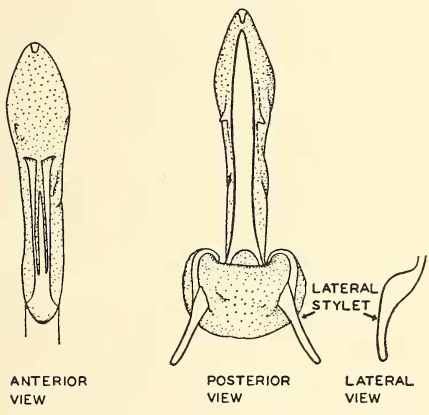


FIG. 2
GENITAL LOBE
DORSOLATERAL VIEW



ANTERIOR VIEW POSTERIOR VIEW LATERAL VIEW

FIG. 3 SUPRAANAL PROCESS

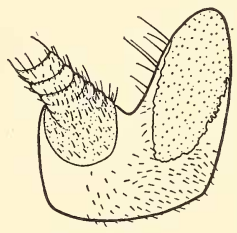


FIG. 4
SUBANAL
LOBE

FIG. 6
♀ SUBGENITAL
PLATE

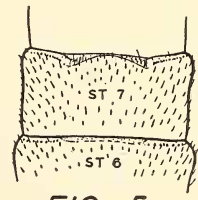
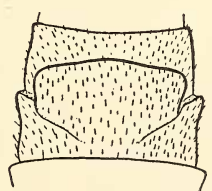


FIG. 5
ABDOMINAL
NAIL, ♂

ISOGENOIDES DORATA FRISON

Naiad.—Frison's description of the naiad cannot be checked at this time, particularly with reference to the color pattern which has faded as a result of preservation in alcohol. It is presumably accurate and of the same species as the holotype specimens since the naiads and exuviae mentioned in the original description were all topotypic. In am hereby designating the exuviae from which the holotype was reared as nepionotype, the exuviae from which the allotype was reared as allonepionotype, and the additional sixteen exuviae and one nymph as paratoponepionotypes. (Although the use of secondary typic terminology has been discouraged in some quarters, since it has no primary value in determining species status, it is my opinion that its usage encourages more systematic and careful work. There have probably been times in the experiences of every taxonomist when such nomenclatorially impotent designations as plesiotype, nepionotype, metatype, or homoeotype would have been of tremendous value in a reappraisal of certain inadequately prepared works.)

Types by original designation of Frison (in Ill. N.H.S.):

Holotype male—near Baldwin, Pere Marquette River, MICH., May 10, 1940 (T. H. Frison, H. H. Ross).

Allotopotype female.

Paratopotypes—1 reared male, 1 female.

Types by present designation (in Ill. N.H.S.):

Nepionotype male—exuviae from which holotype emerged.

Allonepionotype female—exuviae from which allotype emerged.

Paratoponepionotype—1 nymph and 16 exuviae.

Isogenoides hansonii Ricker

1942. *Hydroperla dorata* Frison, ♂♀ and naiad, Bul. Ill. Nat. Hist. Survey 22(2): 295–296, fig. 66 (in part; ♂ and ♀ descr. and figs. apply to *I. hansonii*).
1943. *Isogenoides dorata*, Hanson, Amer. Midl. Nat. 29: 665–669, figs. 4, 8, 14, 15.
1952. *Isogenus (Isogenoides) hansonii* Ricker, ♂♀ and naiad, Ind. Univ. Publ. Sci. Ser. 18: 111–112.

“This species is readily distinguished from all other known species of *Isogenoides* by the spearhead of yellow pigment extending into the ocellar space. The female may well be confused with other species, such as *varians* or *olivaceus*, on the character of its subgenital plate, but the male is easily distinguished by the dorsal lobes on the tenth tergite, the supraanal process, and the lateral stylets.” (Hanson, 1943.)

A detailed description of *I. hansonii* is unnecessary here since it

is supplied in Frison's description under *dorata* (1942) and is supplemented by Hanson's almost simultaneous description under the same name.

Only a few additional collection records have become available to the author and these are from the previously reported Amherst locality.

BIBLIOGRAPHY

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NOTICE

Aphids of the Rocky Mountain Region by Miriam A. Palmer has just been published by the Thomas Say Foundation. It consists of 452 pages, 8 colored plates, and 455 figures of line drawings. Keys are provided for the subfamilies, tribes, genera and species.

Although the title indicates a restricted area, as a matter of fact, the volume includes practically all of the species in North America, north of Mexico.

The volume is priced at \$10.25 postpaid in the United States, and for other countries \$10.50 postpaid. It can be obtained from J. J. Davis, Purdue University, Lafayette, Indiana, and checks made payable to the Thomas Say Foundation.